

Response to DOM Referee

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The Referee' Comments

- In this paper, the authors describe the features of the DAQ system for IceCube and the result of its performance test after manufacturing and deploying some of the photo sensor modules for the IceCube measurement.
- The performance of the system is essential for the IceCube experiment, which will be expected to continue playing an important role in the ultra high energy neutrino experiments. The authors well describe the DAQ system including the front-end sensors called Digital Optical Modules, the communication method between the sensors and online computers on the surface, and the timing distribution and correction method. The system seems to be well thought out and I believe that the manuscript should be published with minor revision.
- Followings are my suggestions for this paper to be published. I hope the opinions can be of any help for this journal as for the authors.

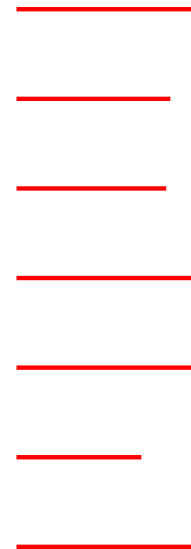
Comment 1

- In the captions of Fig. 2-7, 9, 10, the authors are just giving an overall title of each graphics, which makes it a bit difficult for readers to understand those block diagrams which have a lot of local notations. Although the authors explain them in the main text, brief explanations in the captions about the relationship between the components would be helpful.



Comment 2

- Line 104 – In the ice, leading to a variation in the internal operating temperature of the Doms from -9° at the lowest elevation DOM to -32° at the uppermost DOM.
- Line 111 – Operating temperatures for IceTop stations vary seasonally from -40° to -20° . The ice temperature is about 10° lower.
- The authors describe a large temperature variation for DOMs in the IceCube site and the system test was done with the wide temperature range. I would like to know how large the effect of the temperature variation on the performance of the amplifiers for the PMT signals and the on-board electrical pulsar for calibration. I would like to also know how to make a correction for the temperature variation.



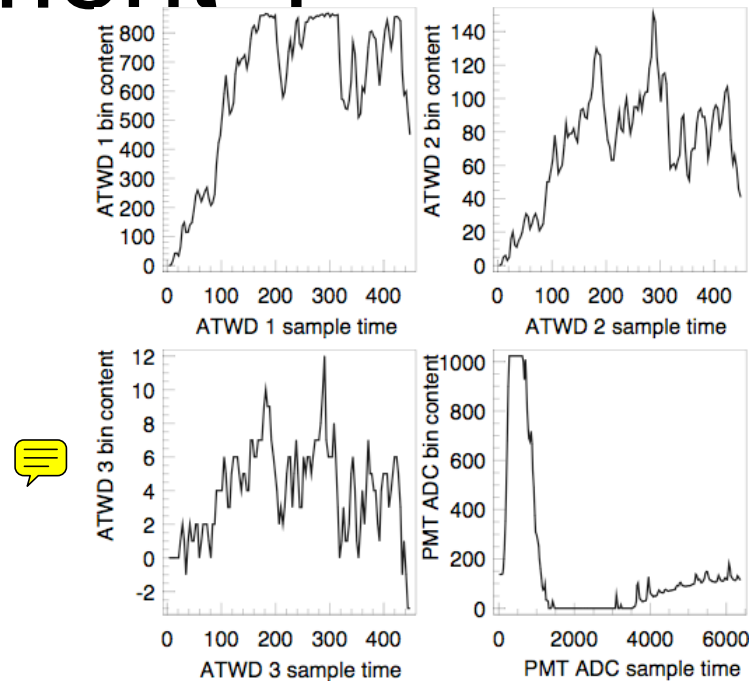
Comment 3

- Line 144 – The IceCube DAQ design relies upon the collaboration's experience acquired from 41 prototype DOMs [8] deployed in AMANDA. I would recommend the authors to make a clearer statement on the difference between this paper and the previous one (Ref. [48]) which describes the IceCube prototype string.



Comment 4

- In Fig.11, it seems to me that there are roughly 3 peaks in each ATWD waveform. Do the authors have any comments about the cause of these structures?



- Describe delayed photons, spread out in time because of ice scattering. reemphasize that data is correlated

Comment 5

- A certain amount of this paper is devoted to describe how to precisely determine the hit timing, and the results of some tests are reported in Sec.6. However, it seems that the goal of the required resolution or correctness from the interest of physics is not well explained. I would recommend inserting a statement on this in Sec.6.



Comment 6

- Line 1051
photos ->
photons

